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CATALOGUE

OF THE

Reptilia and Amphibia

— OF —

MICHIGAN.

BY

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CATALOGUE

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REPTILIA AND AMPHIBIA OF MICHIGAN.

By W. H. Smith, M. D., Ph. D.

The present catalogue is prepared with a view of giving the naturalist the means of determining at a glance the herpetological fauna of the State. That some animals may be omitted which will subsequently be detected, though rare, in Michigan, is a fact too patent to need discussion. And yet it is hoped and believed that the present list will be found nearly or quite complete.

While it is not intended in the present paper to discuss the geographical distribution of these animals, it may be of interest to state that our blue-tailed skink, *Eumeces fasciatus*, which is common in Michigan and the eastern United States, also occurs in Mississippi, Florida, Japan, New Holland and the Philippines, a dozen of this species having been found in the collection brought by Prof. Steere from the last named locality, thus showing that it is probably the commonest lizard found in those islands. Also that our *Rana temporaria* var. *sylvatica* differs somewhat from the European animal, but that those found in Eastern Asia are intermediate between the two. These facts would seem to indicate that the faunas of the two continents had formerly been more or less mingled by a migration from one to the other along our Western border. Also, it may be said, that our *Rana halecina* is the analogue of the *Rana esculenta* of the Old World, and *Bufo lentiginosus* corresponds similarly to their *Bufo vulgaris*.

Some interesting facts meet us in regard to the habitat of these animals, as is notably the case with our lurid salamander, *Amblystoma tigrinum* var. *luridum*. This animal appears every spring as soon as the ice has thawed, at a small pond in Ann Arbor known as the cat-hole. They can be seen there at this period in immense numbers, but soon lay their eggs and disappear. During the remainder of the season they are to be found nowhere in the vicinity of this city, either in or outside of the pond. Where they go in the interim and spend their time only to reappear here again at the breeding season, is, so far as known to me, a mystery. However, it is probable that the animals after oviposition retreat inland and burrow or conceal themselves under logs and stones during the daytime, thus either lying in wait for their prey or issuing forth at night to seek it. In like manner

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the *Notophthalmus viridescens* is found at a lake two miles north of Ann Arbor, and the *Crotalophorus tergeminus* occurs as a rule only in marshes and low places, differing in this respect very strikingly from the rattlesnake of the East.

The habits of some of our animals are met by corresponding modifications of structure. A remarkable instance of this is seen in the soft-shelled turtles, *Trionychidæ*. In these there is a prolongation of the nostrils forwards by a fleshy or leathery tube. The significance and utility of this can be readily understood by recalling the fact that these animals live buried in mud, under water, thus rendering a hard shell unnecessary for protection, and that respiration is accomplished by their bringing this proboscis to the surface. The peculiar modification of the rostral shield in the hog-nosed snake, *Heterodon*, is probably useful to the animal in removing the earth into which it burrows or digs for food. All modifications can be readily understood when the habits of the animal are known, just as surely as we can see the adaptability of the foot-pads in the geckos which enable those animals to walk upon the ceiling.

It may be well to state also that our species of garter-snake—*Eutænia sirtalis*—shows marked variations, some individuals being without the dorsal stripe, some having the colors bright, others dull, while some have the sides spotted and others are uniform with the exception of the stripes. Our *Eumeces fasciatus* also varies greatly, the young being bright, with the stripes well marked, while the adult is a uniform dark green or olive. Of our *Graptemys geographica*, a specimen was recently found by me upon the Huron river, of which the shell exactly resembled the *G. LeSueurii*, but the other parts of the animal conformed precisely to the type.

The blue racer of the West also differs strikingly in color from the typical *Bascanion constrictor*. Our animal is not black, but varies from a light azure blue to a bluish black, in most instances being of the former color. The ordinary shade of the adult Michigan animal is light azure blue, and it might properly be designated as a distinct variety, under the term of *cæruleus*.

A very troublesome thing in regard to the study of these animals is the change that their colors undergo in alcohol. Thus, yellow becomes white; green, blue; and red, brownish black; while brown and metallic tints remain for some time unchanged. However, exposure to the sun for a season will often enable one to form an idea of the original shade.

Sex is often also a difficult matter to determine without dissection. Nevertheless, in most, if not all turtles, the male may be recognized by its concave plastron. In the *Anoura*, the vocal vesicle when present

denotes the male, while at the breeding season, male frogs have the brush and pad upon the thumb, and male toads have corneous glands upon their fingers. Among serpents the females are larger, thicker, less active, and duller colored than the males The difference in size is quite pronounced, especially when the abdomen is filled with eggs. At such times the appearance of the animal is strikingly changed, it being much enlarged, thicker, and of duller coloration than at other periods. The tip of the tail is thinner in males than in females, and its base somewhat enlarged, in order to lodge the double intromittent organ. The young are also bright colored.

Observations upon the development of the rattlesnake show the value of certain characters used in classification. Thus, the fœtal *Crotalophorus* has the subcaudal plates or urosteges divided, and is also provided with grooved fangs. We thus see that these characters indicate immaturity, and hence it follows that those serpents with entire urosteges, and with the fangs perforated, other things being equal, rank higher than those in which these fœtal conditions are permanent in the adult state.

The materials upon which the accompanying list is founded are the specimens in the Museum of Michigan University, and those collected by the writer and other persons in their rambles through the woods. The author has received assistance of this latter kind from Mr. C. B. Cochran and D. J. and W. K. Higley. The last named gentleman has also aided him somewhat in preparing the list of Museum specimens. However, the writer considers himself responsible for the correctness of the present list, he having personally verified every identification. Where this was not possible, and the opportunity of seeing the animal not afforded, the name has been inserted with quotation marks. A star prefixed to a name indicates that the animal was observed in the vicinity of Ann Arbor, and a question mark thus placed signifies that though recorded from the State by some author, yet, in the judgment of the present writer, it is doubtful whether such animal belongs to our fauna; and while the name is here given for reference, the question is raised as to whether the herpetologist so referring it has not fallen into an error.

Of Amphibia and Reptilia not yet observed in Michigan, but whose geographical range is such as to render their occurrence in our limits not improbable, may be mentioned: *Spelerpes bilineatus, longicaudus, et ruber, Rana septentrionalis,* Eutœnia proxima, and Ophibolus calligaster.*

* Proc. Acad. Nat. Sci., Phil., 1854, p. 61.

REPTILIA.

LACERTILIA.

SCINCIDÆ.

ZONURIDÆ.

EUMECES. Wiegman.

* *Eumeces fasciatus*, Linn. — Blue-tailed Skink.

OPHIOSAURUS.

? " *Ophiosaurus ventralis*," Daudin. — Glass Snake.

OPHIDIA.

CROTALIDÆ.

CROTALOPHORUS. Linnæus.

* *Crotalophorus tergeminus*, Holb. — Massassauga.
* " " var. *Kirtlandii*, Holb. — Black "
? " *Crotalophorus miliarius*," Linn. — Ground Rattlesnake.

COLUBRIDÆ.

EUTÆNIA. Baird and Girard.

* *Eutænia saurita*, Linn. — Ribbon Snake.
* " *sirtalis*, Linn. — Common Garter "
" " var. *radix*, B. & G. — Hoy's " "
* " " " *dorsalis*, "
" " " *parietalis*, "

REGINA. Baird & Girard.

* *Regina leberis*, Linn. — Leather Snake.
* " *Kirtlandii*, Kennicott. — Little Red "
" *Grahamii*, B. & G. — Graham's "

TROPIDONOTUS. Kuhl.

* *Tropidonotus sipedon*, Linn. — Water Snake.
" *erythrogaster*, Shaw. — Red-bellied "
" " var. *Agassizii*, B. & G. — Agassiz's "
" *rhombifer*, Hallowell. — Holbrook's "

HETERODON. Beauvois.

* *Heterodon platyrhinus*, Latreille. — Blowing Viper.
" " var. *niger*, Catesby. — Black "

OPHIBOLUS. Baird & Girard.

* *Ophibolus triangulus*, Boie. — Milk Snake.

COLUBER. Linnæus.

* *Coluber obsoletus*, Say. — Pilot Black Snake.
" *vulpinus*, B. & G. — Fox's "

BASCANION. Baird & Girard.

* *Bascanion constrictor*, Linn. Blue Racer.
" " " var. *Foxii*," B. & G. Fox's "

LIOPELTIS. Fitzinger.

* *Liopeltis vernalis*, De Kay. Green Snake.

CYCLOPHIS. Gunther.

? " *Cyclophis æstivus*," Linn. Summer Green Snake.

DIADOPHIS. Baird & Girard.

* *Diadophis punctatus*, Linn. Ring-necked Snake.

STOREERIA. Baird & Girard.

* *Storeria De Kayi*, Holbrook. Little Brown Snake.
* " *occipito-maculata*, Storer. Red-bellied Storeria.

TESTUDINATA.

CISTUDINIDÆ.

CISTUDO. Flem.

* *Cistudo clausa*, Gmelin. Common Box Turtle.

CHELYDRIDÆ.

CHELYDRA. Schweigger.

* *Chelydra serpentina*, Linn. Snapping Turtle.

EMYDIDÆ.

EMYS. Brogniart.

* *Emys meleagris*, Shaw. Long Box Tortoise.

NANEMYS. Agassiz.

* *Nanemys guttatus*, Schneider. Spotted Tortoise.

GRAPTEMYS. AGASSIZ.

* *Graptemys geographica*, Le Sueur. Map Turtle.
" *Le Sueurii*, Gray. Le Sueur's " "

CHRYSEMYS. Gray.

* *Chrysemys marginata*, Agassiz. Lady Turtle.
" *Chrysemys picta*," Gray. Painted "

CINOSTERNIDÆ.

CINOSTERNUM. Spix.

" *Cinosternum Pennsylvanicum*," Bosc. Mud Tortoise.

AROMOCHELYS. Gray.

Aromochelys odoratus, Latr. Musk Tortoise.

TRIONYCHIDÆ.

AMYDA. Schweigger.

Amyda mutica, Le Sueur. Leathery Turtle.

ASPIDONECTES. Wagler.

**Aspidonectes spinifer*, Le Sueur. Soft-shelled Turtle.

AMPHIBIA.

ANOURA.

RANIDÆ.

RANA. Linnæus.

* *Rana halecina*, Kalm.		Leopard Frog.
* " *palustris*, Le Conte.		Marsh "
* " *temporaria*, Linn.; var. *sylvatica*, Le C.		Wood "
* " *clamitans*, Daudin.		Green "
* " *Catesbyana*, Shaw.		Bull "

BUFONIDÆ.

BUFO.

* *Bufo lentiginosus*, Shaw; var. *Americanus*, Le Conte.	American Toad

HYLIDÆ.

HYLA. Laurenti.

* *Hyla versicolor*, Le Conte.	Common Tree Toad.
" *Hyla Pickeringii*," Holb.	Pickering's " "

CHOROPHILUS. Baird.

* *Chorophilus triseriatus*, Wied.	Little Tree Frog.

ACRIS. Dumeril and Bibron.

* *Acris gryllus*, Le Conte; var. *crepitans*, Bd.	

URODELA.

SALAMANDRIDA.

PLETHODON.

* *Plethodon erythronotus*, Green.		Red-backed Salamander.
" "	var. *cinereus*, Green.	Ashy-colored "

NOTOPHTHALMUS.

* *Notophthalmus viridescens*, Raf.	Crimson-spotted Newt.

AMBLYSTOMA.

* *Amblystoma punctatum*, Linn.		Violet-colored Salamander.
* " *opacum*, Gravenhorst.		Blotched "
* " *tigrinum*, Green; var. *luridum*, Sager.		Lurid "
" *Jeffersonianum*, Green.		Granulated Salamander.

PROTEIDA.

MENOBRANCHUS. Harlan.

* *Menobranchus lateralis*, Say.	Mud Puppy.